Attachment 1 to OXC-10294-66

ITEMS IN MODIFYING ENGINEERING SYSTEM OOL OF AN/APQ-93 TO FIELD FLIGHT CONFIGURATION

N 5 Mess

- \$3,000
- 1. Fabricate new transmitter, Requires all new parts, except transformers and pulse forming network from breadboard transmitter can be used.
- 2. Modify mounting panel from 8 feet to 6 feet, assemble spare modules to panel, rework FlOl modules for high temperature to replace spare modules.
- 3. Inspect and rework breadboard synchronizer, particularly the frequency generator.
- 4. Fabricate parametric amplifier, including power supplies, pump tube and interconnections.
- 5. Fabricate doppler frequency tracker board.
- 6. Fabricate receiving TWT assembly (TWT is available from system 001).
- 7. Obtain fiberglass pressure vessel (FlO1 used heavier but cheaper stainless steel vessel). Curave suick
- 8. Fabricate an additional set of interconnecting waveguide for spares (2 complete sets are now available).
- 9. Update the third frame for system modifications of the last three years. (Third frame was used only for initial fit check in 1964, has not been maintained current.)
- 10. Increase in rate of expenditure for spares replacement. If spares are returned to original quantity, no increase in quantity is foreseen. However, since an additional system will be active, the failure of components will increase and require a somewhat higher replacement rate.

~\$200,000.00 or lease.

OXCART SECRET

GROUP 1
Excluded from automatic
downgrading and
declassification

25 YEAR RE-REVIEW

4/14/66

Tasks on Activation of Field Silgus Test

AH, Z

Elapsed Time

bet of Jahoustory

- A. Ship 2 systems, ground suppose seripment.

 second detail Cerrelator, and grants in
 hand in Balthouse.
- 3. Dopost equipment de errival.
- the Manual personnel
- D. Postell primary power distribution in loss.
- E. Chesk-put test equipment
- 7. Establish test armongsment for frame, transmitter, and other mains.
- 6. Objects ST and other subscripts.
- H. Ware and install waveguide in allocate
- I. Arrenge for payenteel bought

II Yest exeles in Liberties

2 waste

- A. Perform complete pre-flight on reder and instrumentation in lab to aperer on impage from skipment and proper system eperation.
- n. Establish compatibility of recorder film with new shemistry of Vertamat at site. Establish procedures with manufactor (atep wedges).
- G. Establish CET bise and video drive lange for new chamistry
- D. Dustall enterms, waveguide, approaches activated and along to acid platform in allerals
- B. Allen wateress
- y. Presence test entenne and waveguide
- 6. Set up second detail correlator in lab
- E. Coordinate pro-flight and flight plant and procedures with flight operations and pileto

1/223

GROUP 1
Excluded from automatic
recovery and
declassification

Attachment to OXC-10294-66

- 1. Dat in progresser operation for initial file.
- J. Check becamical alignment and electrical operation of tracker camers. (Neguires special & My hatch with winter)

III Test system in aircraft

3 weeks

A. Check out sireraft cabling

- (3 days)
- 1. Inspect mechanical cabling and commissions
- P. Check electrically for proper voltages and imput signals
- B. Setablish correct scale feature and polarity (3 days) of IKS imputs to radar anteres stabilization (you and pitch impute), Single axis platform (roll input) and file drive (ground speed input).
- C. Check operation of digital magnetic tape (1 day) recorder as operated by mader. Check weeks in the of data read-out from responder.
- D. Perform full pro-flight (3 days)

Attachment 20 - OXC-10294-66

- is 1. Estimated elapsed times are effective only after

 15 May 1966 when single axis platform connector change,
 state gain change, and other minor improvements are
 emplete and the two delivered systems are regularly
 pre-flighted to determine and maintain their readiness.
 - 2. Yotal elepsed time che be shortened from 7 weeks to 5 weeks or less if basis I of setting up laborations can be edecoplished pulses to the satual setivation goshould. This would entitle an integrate in posts beyond that given in proposal J6194-75.
 - 3. Purther reduction in clapsed time can be accomplished by round-the-clock work in Nestinghabout, which, and IRS personnel, with good ecoperation, this could be reduced to appearately three weeks, although this protective abviously reduced the effectiveness of overtime to overtime magnetical problems.

4/14/66

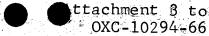
Objectives of Pield Flight Best

Attachment 3 to -OXC-10294-66

- Determination of system performance through ground tests and measurements (transmitter power, receiver noise figure, film drive, etc.) to establish compatibility of AN/APQ-93
 - A. Sirerest primary power
 - B. aircraft hydraulic system
 - 6. inertial navigation system
 - 1. antenna motion complication
 - 2. single axis platform roll stabilization
 - 3. film metion
 - D: digital magnetic tape recorder
- II Determination of system performance through instrumentation and rader mapping data in filling at 40,000 feet altitude (same as high sititude flights with F-101) to determine compatibility with aircraft environment, particularly vibration, secclerations along antenna beam, and cooling.
- III Determination of radar performance at the alperaft final altitude primarily through analysis of radar mapping data, checking in particular
 - A. effect of clutter from first and third time around eche.
 - B. sensitivity, as indicated by return from corner and spherical reflector targets and from area targets such as grassland and trees.

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- C. resolution, as indicated by specific point targets and
- D. antenna positioning by the doppler frequency tracker
- E. Serforming of single axis platform accelerometer in correcting for aircraft motion
- P. spectrum of doppler fragmency gatum to optimize centering of offset fragmency
- d. receiver gain and limit level to optimize dynamic range of returns
- N. effect of aircraft variations of grants speed, pitch, roll, and drift
- IV Obtaining radar data for interpretation and analysis of specific targets.